

# Darren L. Jackson

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## Professional Experience

### 2004 – 2005 Environmental Technology Laboratory Boulder, CO

CIRES: Senior Associate Scientist

- Developing multi-instrument retrieval of near-surface temperature and specific humidity using satellite microwave observations.
- Developing optimal interpolation method for blending SST observations derived from infrared and microwave satellite instruments.
- Developing method to remove diurnal biases from HIRS observations.
- Manage the acquisition, processing and archival of satellite data for the Satellite Remote Sensing group at ETL.

### 1999 – 2004 Environmental Technology Laboratory Boulder, CO

CIRES: Associate Scientist III

- Developed code to limb correct, cloud-clear, retrieve cloud parameters using 23 years of TOVS/ATOVS 1b data.
- Developed upper tropospheric humidity (UTH) retrieval, processed 20 years of UTH data, and analyzed UTH trends and variability.
- Studied local scales of convection using TRMM TMI precipitation data.
- Managed the acquisition, processing and archival of satellite data for the Satellite Remote Sensing group at ETL.

### 1994 – 1999 Climate Diagnostic Center Boulder, CO

CIRES: Professional Research Assistant

- Processed and analyzed the NESDIS Operational sounding clear column radiance data.
- Performed intercomparison of upper tropospheric water vapor data derived from TOVS, SSM/I, SAGE, and radiosonde data and compared these observed data to climate model simulations.

### 1989 – 1994 Colorado State University Fort Collins, CO

Graduate Research Assistant

- Analyzed temporal and spatial variability of four years of precipitable water derived from the SSM/I.
- Conducted comparison study of precipitable water measurements derived from radiosonde and satellite observations.

### 1986 – 1989 Iowa State University Ames, IA

Undergraduate Research Assistant

- Assisted in the research of retrieving ozone concentrations using satellite observations.

- Technical Skills
- Expertise using UNIX, Linux and Microsoft Operating Systems.
  - Extensive experience with FORTRAN 77, FORTRAN 90, IDL, C shell, Perl languages.
  - Proficiency in using Microsoft Office such as Word, Excel, PowerPoint and Adobe Illustrator.
  - Experience in writing journal articles and creating oral and poster presentations for conferences.

- Education
- 1989 – 1992 Colorado State University Fort Collins, CO  
Atmospheric Science
- Master of Science, Fall 1992, GPA: 3.9/4.0
- 1985 – 1989 Iowa State University Ames, IA  
Meteorology
- Bachelor of Science, Spring 1989, GPA: 3.7/4.0
  - Graduated with Distinction and Honors

- Professional Memberships
- Member of American Meteorological Society (1986-2005)
  - Member of American Geophysical Union (1999-2005)

- Community Service
- Volunteer for Peak to Peak Charter School, Cub Scout Assistant Den leader for Pack 63, Volunteer for Centaurus Little League.

- Journal Publications
- Smith, D.F., A.J. Gasieleski, D.L. Jackson, and G.A. Wick, 2005: Local spatial scales of tropical deep convection inferred from TMI precipitation data. *IEEE Trans. Geosci. Remote Sensing*, accepted.
- Wylie, D.P., D.L. Jackson, W.P. Menzel, and J.J. Bates, 2005: Trends in global cloud cover in 22 years of HIRS observations. *J. Climate*, accepted.
- Jackson, D.L. and J.J. Bates, 2001: Upper tropospheric humidity algorithm assessment. *J. Geophys. Res.*, **106**, 32259-32270.
- Bates, J.J., D.L. Jackson, and Z. Bergen, 2001: Variability of the upper tropospheric humidity. *J. Geophys. Res.*, **106**, 32271-32282.
- Bates, J.J., and D.L. Jackson 2001: Trends in upper tropospheric humidity. *Geophys. Res. Let.*, **28**, 1695-1698.
- Garand, L. and Co-Authors, 2001: Radiance and Jacobian intercomparison of radiative transfer models applied to HIRS and AMSU channels. *J. Geophys. Res.*, **106**, 24017-24031.
- Bréon, F.-M., D.L. Jackson, and J.J. Bates, 2000: Calibration of the Meteosat water vapor channel using coincident NOAA/HIRS-12 measurements. *J. Geophys. Res.*, **105**, 11,925-11,933.

- Soden, B., and Co-Authors, 2000: An intercomparison of radiation codes for retrieving upper tropospheric humidity in the 6.3-micron band: A report from the 1st GVAP workshop. *Bull. Amer. Meteor. Soc.*, **81**, 797-808.
- Bréon, F.-M., D.L. Jackson, and J.J. Bates, 1999: Evidence of atmospheric contamination on the measurement of the spectral response of GMS-5 water vapor channel. *J. Atmos. Oceanic Technol.*, **16**, 1851-1853.
- Berg, W., J.J. Bates, and D.L. Jackson, 1999: Analysis of upper-tropospheric water vapor brightness temperatures from SSM/T2, HIRS, and GMS-5 VISSR. *J. Appl. Meteor.*, **38**, 580-595.
- Bates, J.J., and D.L. Jackson, 1997: A comparison of water vapor observations with AMIP-I simulations. *J. Geophys. Res.*, **102**, 21,837-21,852.
- Bates, J.J., X. Wu, and D.L. Jackson, 1996: Interannual variability of upper tropospheric water vapor band brightness temperature. *J. Climate*, **9**, 427-438.
- Stephens, G.L., D.L. Jackson, and I. Wittmeyer, 1996: Global observations of upper-tropospheric water vapor derived from TOVS radiance data. *J. Climate*, **9**, 305-326.
- Jackson, D.L., and G.L. Stephens, 1995: A study of SSM/I derived columnar water vapor over the global oceans. *J. Climate*, **8**, 2025-2038.
- Stephens, G.L., D.L. Jackson, and J.J. Bates, 1994: A comparison of SSM/I and TOVS column water vapor data over the global oceans. *Meteorol. Atmos. Phys.*, **54**, 183-201.
- Greenwald, T.J., G.L. Stephens, T.H. Vonder Haar, and D.L. Jackson, 1993: A physical retrieval of cloud liquid water over the global oceans using SSM/I observations. *J. Geophys. Res.*, **98**, 18, 471-18,488.
- Tjemkes, S.A., G.L. Stephens, and D.L. Jackson, 1991: Spaceborne observation of columnar water vapor: SSML observations and algorithm. *J. Geophys. Res.*, **96**, 10,941-10,954.

Conference  
Extended  
Abstracts

- Wick, G.A., D.L. Jackson, S.L. Castro, 2004: Production of an enhanced blended infrared and microwave sea surface temperature product. *2004 International Geoscience and Remote Sensing Symposium (IGARSS) Annual Meeting*, Anchorage, Alaska, September 20-24, 2004.
- Jackson, D.L. and B. Soden, 2004: The effects of orbital drift on spectral radiances from HIRS observations and GFDL climate model simulations. *13<sup>th</sup> Conference on Satellite Meteorology and Oceanography*, Norfolk, Virginia, September 20-23, 2004.
- Jackson, D.L. and G.A. Wick, 2004: Near-surface retrieval of air temperature and specific humidity using multi-sensor microwave satellite observations. *13<sup>th</sup> Conference on Satellite Meteorology and Oceanography*, Norfolk, Virginia, September 20-23, 2004.
- Wylie, D., D.L. Jackson, P. Menzel, and J.J. Bates, 2004: Trends in high clouds over the past 22 years. To be presented at *15<sup>th</sup> Symposium on Global Change and Climate Variations*, Seattle, Washington, January 11-15, 2004.

- Jackson, D.L., J.J. Bates, and D. Wylie, 2003: The HIRS Pathfinder Radiance data set (1979-2001). *12th Conference on Satellite Meteorology and Oceanography*, Long Beach, California, February 10-13, 2003.
- Wylie, D.P., W.P. Menzel, D.L. Jackson and J.J. Bates, 2003: Trends in high clouds over the last 20 years. *12th Conference on Satellite Meteorology and Oceanography*, Long Beach, California, February 10-13, 2003.
- Jackson, D.L. and J.J. Bates, 2001: Climate analysis with the 21-yr HIRS Pathfinder radiance clear-sky data set. *11th Conference on Satellite Meteorology & Oceanography*, Madison, Wisconsin, October 15-18, 2001.
- Jackson, D.L., and J.J. Bates, 2000: A 20-yr TOVS Pathfinder data set for climate analysis. *Tenth Conference on Satellite Meteorology*, Long Beach, CA, January 10-14, 2000.
- Bates, J.J., Bergen Z., and D.L. Jackson, 2000: Upper tropospheric water vapor observations and modeling - a summary of recent progress. *Eleventh Conference on Global Change Studies*, Long Beach, CA, January 10-14, 2000.
- Berg, W., J.J. Bates, D.L. Jackson, and M. Deeter, 1998: Analysis of upper tropospheric water vapor brightness temperatures from SSM/T2 and HIRS. *Proc. Ninth Conference on Satellite Meteorology*, Paris, France, May 25-29, 1998, Amer. Met. Soc.
- Bates, J.J., and D.L. Jackson, 1998: Water vapor feedback during an enhanced hydrologic cycle. *Proc. Ninth Symposium on Global Change Studies*, Phoenix, AZ, January 12-16, 1998, Amer. Met. Soc.
- Bates, J.J., Wesley Berg, D.L. Jackson, and Merritt N. Deeter, 1998: Intercalibration and optimal assimilation of satellite water vapor information. *Proc. Second Symposium on Integrated Observing Systems*, Phoenix, AZ, January 12-16, 1998, Amer. Met. Soc.
- Bates, J.J., and D.L. Jackson, 1997: Seasonal and interannual variability of upper tropospheric humidity and clear sky outgoing longwave radiation. *Proc. Ninth Conference on Atmospheric Radiation*, Long Beach, CA, February 2-7, 1997, Amer. Met. Soc.
- Bates, J.J., and D.L. Jackson, 1997: A comparison of satellite water vapor observations with model simulations. *Proc. Eighth Symposium on Global Change Studies*, Long Beach, CA, February 2-7, 1997, Amer. Met. Soc., presenting author.

## Conference Posters

- Eleftheratos, K., K. Gierens, and D. Jackson, 2004, Upper tropospheric humidity: Climatology and Trends. *COST Action 723 "Cirrus – ISSRs" Meeting*, Oberpfaffenhofen, Germany, October 11-12, 2004.
- Jackson D.L. and B. Soden, 2004: The effects of orbital drift on spectral radiances from HIRS observations and GFDL climate model simulations. *13<sup>th</sup> Conference on Satellite Meteorology and Oceanography*, Norfolk, Virginia, September 20-23, 2004.
- Jackson D.L. and G.A. Wick, 2004: Near-surface retrieval of air temperature and specific humidity using multi-sensor microwave satellite observations. *13<sup>th</sup> Conference on Satellite Meteorology*

and Oceanography, Norfolk, Virginia, September 20-23, 2004.

- Wick, G.A., D.L. Jackson, and S.L. Castro, 2003: Production of an enhanced blended infrared and microwave sea surface temperature product. *12<sup>th</sup> Conference on Satellite Meteorology and Oceanography*, Long Beach, California, February 10-13, 2003.
- Jackson, D.L., J.J. Bates, and D. Wylie, 2003: The HIRS Pathfinder Radiance data set (1979-2001). *12th Conference on Satellite Meteorology and Oceanography*, Long Beach, California, February 10-13, 2003.
- Wylie, D.P., W.P. Menzel, D.L. Jackson, and J.J. Bates, 2003: Trends in high clouds over the last 20 years. *12th Conference on Satellite Meteorology and Oceanography*, Long Beach, California, February 10-13, 2003.
- Jackson, D.L., and J.J. Bates, 2000: The TOVS Radiance Pathfinder data set. *Eleventh International TOVS Study Conference*, Budapest, Hungary, September 20-26, 2000.
- Bates, J.J., and D.L. Jackson, 2000: Interannual variability and long-term trends in upper tropospheric humidity. *Eleventh International TOVS Study Conference*, Budapest, Hungary, September 20-26, 2000.
- Jackson, D.L., and J.J. Bates, 2000: A 20-yr TOVS Pathfinder data set for climate analysis. *Tenth Conference on Satellite Meteorology*, Long Beach, CA, January 10-14, 2000.
- Breon, F.-M., D.L. Jackson, and J.J. Bates, 2000: Calibration of the Meteosat water vapor channel using coincident NOAA/HIRS-12 measurements. *Tenth Conference on Satellite Meteorology*, Long Beach, CA, January 10-14, 2000.
- Jackson, D.L., and J.J. Bates, 1999: Climate analysis of the TOVS Pathfinder data set. Poster presented at the Tenth International TOVS Study Conference, Boulder, CO, January 27 - February 2, 1999.
- Stephens, G.L., D.A. Randall, D.L. Jackson, T.J. Greenwald, and I.L. Wittmeyer, 1993: Pre-GEWEX studies of hydrology and climate. Poster session for the 30th session of the Colorado State University Atmospheric Science Department
- Conference  
Oral  
Presentations
- Smith, D., A. Gasiewski, D. Jackson, and G. Wick, 2004: Spatial Scales of Tropical Precipitation Inferred from TRMM Microwave Imager Data. *19<sup>th</sup> Conference on Hydrology*, San Francisco, California, January 9-13, 2005.
- Smith, D., A. Gasiewski, D. Jackson, and G. Wick, 2004: Spatial Scales of Tropical Precipitation Inferred from TRMM Microwave Imager Data. *AGU 2004 Fall Meeting*, San Francisco, California, December 13-17, 2004.
- Wick, G.A., D.L. Jackson, S.L. Castro, 2004: Production of an enhanced blended infrared and microwave sea surface temperature product. *2004 International Geoscience and Remote Sensing Symposium (IGARSS) Annual Meeting*, Anchorage, Alaska, September 20-24, 2004.
- Smith, D., A. Gasiewski, D. Jackson, and G. Wick, 2004: Local Spatial

Scales of Tropical Deep Convection Inferred from TRMM Precipitation Data. *2004 International Geoscience and Remote Sensing Symposium (IGARSS) Annual Meeting*, Anchorage, Alaska, September 20-24, 2004.

Smith, D., A. Gasiewski, D. Jackson, and G. Wick, 2004: Local scales of tropical deep convection inferred from TMI precipitation data. *8<sup>th</sup> Specialist Meeting on Microwave Radiometry and Remote Sensing Applications*, Rome, Italy, February 24-27, 2004.

Wylie, D., D.L. Jackson, P. Menzel, and J.J. Bates, 2004: Trends in high clouds over the past 22 years. *15<sup>th</sup> Symposium on Global Change and Climate Variations*, Seattle, Washington, January 11-15, 2004.

Smith, D., A. Gasiewski, D. Jackson, and G. Wick, 2003: Local spatial scales of tropical deep convection inferred from SSM/I precipitation data. *AGU 2003 Fall Meeting*, San Francisco, CA, December 8-12, 2003.

Wick, G.A., D.L. Jackson, and S.L. Castro, 2003: Production of an Enhanced Blended Infrared and Microwave Sea Surface Temperature Product. *2003 IEEE AP-S International Symposium on Antennas and Propagation and USNC/CNC/URSI North American Radio Science Meeting*, Columbus, Ohio, June 22-27, 2003.

Prata, F., J.J. Bates, and D.L. Jackson, 2002: A new method for the retrieval of upper troposphere/lower stratosphere sulfur dioxide from global long-term TOVS measurements. *Twelvth International TOVS study Conference*, Lorne, Victoria, Australia, February 26 - March 5, 2002.

Bates, J.J., and D.L. Jackson, 2000: Interannual variability and long-term trends in upper tropospheric humidity. *Eleventh International TOVS Study Conference*, Budapest, Hungary, September 20-26, 2000.

Bates, J.J., Bergen Z., and D.L. Jackson, 2000: Upper tropospheric water vapor observations and modeling - a summary of recent progress. *Eleventh Conference on Global Change Studies*, Long Beach, CA, January 10-14, 2000.

Berg, W., J.J. Bates, D.L. Jackson, and M. Deeter, 1998: Analysis of upper tropospheric water vapor brightness temperatures from SSM/T2 and HIRS. *Proc. Ninth Conference on Satellite Meteorology*, Paris, France, May 25-29, 1998, Amer. Met. Soc.

Bates, J.J., and D.L. Jackson, 1998: Water vapor feedback during an enhanced hydrologic cycle. *Proc. Ninth Symposium on Global Change Studies*, Phoenix, AZ, January 12-16, 1998, Amer. Met. Soc.

Bates, J.J., Wesley Berg, D.L. Jackson, and Merritt N. Deeter, 1998: Intercalibration and optimal assimilation of satellite water vapor information. *Proc. Second Symposium on Integrated Observing Systems*, Phoenix, AZ, January 12-16, 1998, Amer. Met. Soc.

Bates, J.J., and D.L. Jackson, 1997: Seasonal and interannual variability of upper tropospheric humidity and clear sky outgoing longwave radiation. *Proc. Ninth Conference on Atmospheric Radiation*, Long Beach, CA, February 2-7, 1997, Amer. Met. Soc.

Bates, J.J., and D.L. Jackson, 1997: A comparison of satellite water

vapor observations with model simulations. *Proc. Eighth Symposium on Global Change Studies*, Long Beach, CA, February 2-7, 1997, Amer. Met. Soc., presenting author.

Bates, J.J., and D.L. Jackson, 1996: Opening windows to cool the greenhouse: Observational evidence of a tropical water vapor balance. Presented at Second International Conference on the Global Energy and Water Cycle, Washington, D.C., June 17-21, 1996.

Bates, J.J., and D.L. Jackson, 1995: Rethinking the water vapor feedback. *AGU 1995 Fall Meeting*, San Francisco, CA December 14-18, 1995.

## Related Publications

Kennett E.J., and R. Toumi, 2003: Asymmetry and non-linearity in upper tropospheric humidity variability. *Geophys. Res. Lett.*, **30**, 2161, doi:10.1029/2003GL018238.

Iacono, M.J, J.S. Delamere, E.J. Mlawer, and S.A. Clough, 2003: Evaluation of upper tropospheric water vapor in the NCAR Community Climate Model (CCM3) using modeled and observed HIRS radiances. *J. Geophys. Res.*, **108**, doi:10.1029/2002JD002539.

Gutowski, W.J., E.A. Lindemulder, and K Jovaag, 1995: Temperature-dependent daily variability of precipitable water in special sensor microwave/imager observations. *J. Geophys. Res.*, **100**, 22,971-22,980.